

Draft Sample Final Wetland Assessment Report:

Project Name: Wetland Fill Corporation

Corps Permit number: 199212345

Project Location: Maple Grove, CT, Mitigation Site 5B

Assessment Report Prepared By: Mr. Mauny Tauring, environmental consultant

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Mitigation Site Description:

The mitigation plan referenced in the special conditions of Corps permit number 199212345 states that the goal of the site is to replace the functions and values of the wetlands impacted by the project with similar functions and values at the mitigation site. These functions and values are wildlife habitat, flood storage, and sediment and toxicant retention. This project impacted approximately one acre of forested/scrub-shrub wetlands in the floodplain of the Soho River. The impact area is located between a shopping center and the Soho River. The mitigation site is located in the edge of a farm field adjacent to an existing floodplain forested wetland. This site was formerly a farm field planted in corn and is adjacent to the Soho River and approximately 500 feet to the south of the impact area. The sandy loam alluvial soils on the site are topped with a 10" organic-rich fine sandy loam topsoil layer. The site gently slopes down from the adjacent farm fields to the Soho River, and is bordered on one side by an existing upland forest with a small wetland pocket dominated by *Phragmites australis* along the edge.

Mitigation goals and a discussion of the level of attainment of each goal:

The goal of the mitigation site involved the creation of a one acre floodplain forested/scrub-shrub wetland with the following functions and values: wildlife habitat for large and small mammals, birds, reptiles, and amphibians typically inhabiting floodplain forested wetlands; flood storage of 15 acre-feet at Elevation 293 NGVD, which is the top of the slope from the edge of the farm field into the mitigation area; and sediment and toxicant retention, primarily of pesticides and fertilizer runoff, as well as any minor erosion from the farm field. Refer to Appendix A for the functions and values datasheets used to assess the site during the fifth year after construction.

Wildlife habitat, mainly in the form of habitat (shelter, nesting, and food source) for songbirds and small mammals, does exist at the site, but not to the

same extent as the impacted wetlands provided. The impacted wetlands consisted of forested and scrub-shrub wetland communities, but the mitigation site currently consists of a wet meadow with a shrub component. Eventually, additional shrubs and trees may volunteer into the site and the site will have many of the features of the impacted wetlands including snags, a forested canopy, and diverse vegetation that attracted wildlife to those wetlands. Deer (feeding), songbirds (perching, feeding, and nesting), two spotted turtles (feeding and sheltering), great blue herons (feeding), frogs (full life cycle), and aquatic macroinvertebrates were observed at the site.

The flood storage area designed for the site has been built according to the plan. The site was often noted to be filled with water from the adjacent stream during storm events. The as-built plan shows the elevations constructed. The site is located within the 100-year floodplain as shown in the FEMA map number 522, and based on the constructed elevations compared with the elevation at the top of the slope and the river elevations in a 100-year flood, this site provides approximately 15 acre-feet of flood storage at Elevation 293 NGVD.

The opportunity to perform the sediment and toxicant retention functions at the site appears to be as designed, with the stormwater runoff from the nearby farm field running into the site and being partially treated by the diverse emergent vegetation before discharging into the river. The sediment that has settled into the site from the farm field is now at a depth of approximately 0.5" closest to the field and is not measurable beyond 10' into the site.

Significant problems encountered and solutions developed during construction and/or monitoring periods:

One problem encountered during construction was the question of how far into the upland forest bordering one edge of the site the construction crews should excavate in order to dig out the *Phragmites australis* that existed in there prior to construction. The mitigation plans showed the boundary of the mitigation site, but did not specify the areas of *Phragmites* stands. The Environmental Scientist on-site stated that all of the *Phragmites* stands should be excavated to avoid the future invasion of this species into the site. Some of the *Phragmites* plants, however, grew amidst the forested area, which was clearly beyond the boundary of the mitigation site. In the end it was decided that those *Phragmites* plants located within the forested area adjacent to mitigation site would be chemically treated rather than excavated. This small stand has since expanded into the site, so it appears that the mitigation plans

should have included the entire *Phragmites* stands to be excavated adjacent to the mitigation site to get all of the root material off the site. The stands that were not excavated appear to have provided the root and seed source for the *Phragmites* plants currently invading the area.

In addition, the stand that came into the site was treated with herbicides only during the first and third year of monitoring. This was due to a change in wetland consultants after the first year of monitoring and the failure of the permittee to require the replacement environmental consultant to treat the invasive species, as required by the Corps permit. A few *Phragmites* plants came back the next year, and this year the stand is almost back to its original density. The Corps permit mitigation special condition stated that all *Phragmites* plants were to have been treated during every year of monitoring until all of the plants were removed from the site, but this treatment did not occur every year. In the future, the permittee should ensure that all of the Corps required special conditions are met.

Identification of departmental or agency procedures or policies which negatively impacted mitigation sites:

There was a problem caused by a failure in the preliminary planning process. The mitigation plan should have included a plan showing all existing *Phragmites* stands as well as the limits of excavation and herbicide application in those stands. In addition, the above-mentioned *Phragmites* stand should have been treated past the three-year monitoring period. The Corps typically discontinues remedial activities at mitigation sites at the conclusion of the monitoring period. When the viability or stability of a site is in question at this point, consideration of extending the monitoring period should be made. For instance, with a *Phragmites* removal effort, the initial monitoring plan could state that ongoing treatment of this species will continue as necessary up to 7 or perhaps 10 years, since this is known to be a long process.

Recommendations for future projects:

Avoid planting *Sambucus canadensis* in areas with the potential for deer overbrowsing, plant fewer *Alnus rugosa* since they have come in on their own throughout the site, and do not plant *Clethra alnifolia* in open sites with full sun. When the mitigation planting plan for this site was developed, these species were commonly planted in similar wetland creation projects. I now recommend that, based on my experience in wetland construction projects, these species be excluded from future planting plans under normal circumstances.

Sediment is currently accumulating within the first 10' of the mitigation area from runoff from the adjacent farm field. Eventually, this sediment may cause portions of the site to fill in and become uplands. If this is an undesirable situation, an upland buffer strip should be planted between the farm field and the mitigation site to trap some of the sediments before they enter the site.

Mitigation Project Summary:

This mitigation project was planned to create approximately 1.0 acre of forested/scrub-shrub wetlands, which would provide wildlife habitat, flood storage, and sediment and toxicant retention functions. The area of wetlands is as designed, although the type of wetlands is slightly different. The wetlands could currently be classified as scrub-shrub/wet meadow wetlands, with *Acer rubrum* and *Alnus rugosa* seedlings volunteering onto some of the mounds. This indicates that at least a portion of the site will eventually become a forested wetland, although this will take many years. The site currently supports a diverse hydrophytic vegetative community, including many volunteer herbaceous and a few volunteer woody species. This is consistent with the goals set out in the original mitigation plan. This site should be considered somewhat successful since the wetland cover types proposed are somewhat different than those currently achieved, although the site is functioning as a wetland which may eventually transition into the planned community types. The invasive species problem also indicates that the site is not entirely successful, since this species may continue to invade the site in the future and therefore decrease its functions and values.

Appendices:

Appendix A: Functions and values assessment and documentation

Appendix B: Calculation of federal jurisdictional wetland area and supporting documentation

Appendix C: Plan view of mitigation sites with current wetland delineation boundary, originally proposed wetland delineation boundary, and major vegetation community types

Appendix D: Photos of site taken from same fixed locations as monitoring photos

